



U.S. Department  
of Transportation  
**Pipeline and  
Hazardous Materials  
Safety Administration**

**COMPETENT AUTHORITY CERTIFICATION  
FOR A TYPE B(U)  
RADIOACTIVE MATERIALS PACKAGE DESIGN  
CERTIFICATE USA/9290/B(U)-96, REVISION 5**

400 Seventh Street, S.W.  
Washington, D.C. 20590

This certifies that the radioactive material package design described has been certified by the Competent Authority of the United States as meeting the regulatory requirements for a Type B(U) packaging for radioactive material as prescribed in the regulations of the International Atomic Energy Agency<sup>1</sup> and the United States of America<sup>2</sup>.

1. Package Identification - MDS Nordion Model No. F-430/GC-40 Transport Package.
2. Package Description and Authorized Radioactive Contents - as described in U.S. Nuclear Regulatory Commission Certificate of Compliance No. 9290, Revision 4 (attached).
3. General Conditions -
  - a. Each user of this certificate must have in his possession a copy of this certificate and all documents necessary to properly prepare the package for transportation. The user shall prepare the package for shipment in accordance with the documentation and applicable regulations.
  - b. Each user of this certificate, other than the original petitioner, shall register his identity in writing to the Office of Hazardous Materials Technology, (PHH-23), Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, Washington D.C. 20590-0001.
  - c. This certificate does not relieve any consignor or carrier from compliance with any requirement of the Government of any country through or into which the package is to be transported.

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<sup>1</sup> "Regulations for the Safe Transport of Radioactive Material, 1996 Edition (Revised), No. TS-R-1 (ST-1, Revised)," published by the International Atomic Energy Agency(IAEA), Vienna, Austria.

<sup>2</sup> Title 49, Code of Federal Regulations, Parts 100-199, United States of America.

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- d. Records of Quality Assurance activities required by Paragraph 310 of the IAEA regulations<sup>1</sup> shall be maintained and made available to the authorized officials for at least three years after the last shipment authorized by this certificate. Consignors in the United States exporting shipments under this certificate shall satisfy the applicable requirements of Subpart H of 10 CFR 71.
4. Marking and Labeling - The package shall bear the marking USA/9290/B(U)-96 in addition to other required markings and labeling.
5. Expiration Date - This certificate expires on February 28, 2012.

This certificate is issued in accordance with paragraph 808 of the IAEA Regulations and Section 173.471 of Title 49 of the Code of Federal Regulations, in response to the December 13, 2006 petition by MDS Nordion, Ottawa, Ontario, and in consideration of other information on file in this Office.

Certified By:



Bob Richard  
Deputy Associate Administrator for Hazardous Materials Safety

**Feb 20 2007**  
(DATE)

Revision 5 - Issued to endorse U.S. Nuclear Regulatory Commission Certificate of Compliance No. 9290, Revision 4, and to extend the expiration date.

**CERTIFICATE OF COMPLIANCE  
FOR RADIOACTIVE MATERIAL PACKAGES**

1. a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
9290	4	71-9290	USA/9290/B(U)-85	1 OF	3

2. PREAMBLE

- a. This certificate is issued to certify that the package (packaging and contents) described in Item 5 below meets the applicable safety standards set forth in Title 10, Code of Federal Regulations, Part 71, "Packaging and Transportation of Radioactive Material."
- b. This certificate does not relieve the consignor from compliance with any requirement of the regulations of the U.S. Department of Transportation or other applicable regulatory agencies, including the government of any country through or into which the package will be transported.

3. THIS CERTIFICATE IS ISSUED ON THE BASIS OF A SAFETY ANALYSIS REPORT OF THE PACKAGE DESIGN OR APPLICATION

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| <p>a. ISSUED TO (<i>Name and Address</i>)</p> <p>MDS Nordion<br/>447 March Road<br/>Kanata, Ontario<br/>Canada K2K 1X8</p> | <p>b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION</p> <p>MDS Nordion application dated February 20, 2003, as supplemented.</p> |
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4. CONDITIONS

This certificate is conditional upon fulfilling the requirements of 10 CFR Part 71, as applicable, and the conditions specified below.

5.

(a) Packaging

- (1) Model No. F-430/GC-40 Transport Package
- (2) Description

The Model No. F-430/GC-40 Transport package is designed to transport MDS Nordion's Gammacell-40 (GC-40) irradiator containing cesium-137 sealed sources in special form. The F-430 overpack provides impact and thermal protection for the radioactive contents. Containment is provided by the special form sealed source and shielding is provided by the GC-40 irradiator body.

The F-430 is stainless steel cylindrical package with a 50" diameter and a height of 50" that is placed on a removable mild steel skid. The maximum weight of the package is 7000 pounds. The maximum weight of the GC-40 contents is 4000 pounds.

The overpack consists of nested cylindrical shells. The shells are made from stainless steel and the volume between the shells is filled with rigid foam. This foam provides insulation during an accidental fire. Vent holes, plugged with material designed to melt in a fire, are provided between the shells to prevent pressure buildup and allow a pathway for escape of gases from foam during an accidental fire.

The package contents consists of a Cesium-137 sealed source contained within an MDS Nordion GC-40 irradiator (upper or lower heads). The GC-40 is a research irradiator with lead shielding and a lead filled source drawer.

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5.(a)(2) (continued)

The approximate dimensions and weights of the package are as follows:

Package outside diameter	50 inches
Package height	50 inches
Cavity diameter	36 inches
Cavity height	35.25 inches
Removable skid	50 inches x 50 inches x 8 inches (height)
Overpack weight	2640 pounds
Contents weight	4000 pounds
Maximum package weight	7000 pounds

(3) Drawings

The packaging is constructed in accordance with the MDS Nordion drawings F643001-001, Rev. K, Sheet 1 of 2, and F643001-001, Rev. D, Sheet 2 of 2.

(b) Contents

(1) Type and form of material

Cesium-137 as a sealed source which meet the requirements of special form radioactive material.

(2) Maximum quantity of material per package

2,000 Curies.

6. In addition to the requirements of Subpart G of 10 CFR Part 71:

- (a) The package must be prepared for shipment and operated in accordance with the Operating Procedures in Chapter 7 of the application.
- (b) Each packaging must be acceptance tested and maintained in accordance with the Acceptance Tests and Maintenance Program in Chapter 8 of the application.



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7. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 71.17.
8. Revision No. 3 of this certificate may be used until November 30, 2007.
9. Expiration date: February 28, 2012.

REFERENCES

MDS Nordion application dated February 20, 2003.

Supplements dated: July 21, August 25, and December 18, 2003; January 16, July 16, July 21, and July 23, 2004; April 21, and October 30, 2006.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

  
Robert A. Nelson, Chief  
Licensing Branch  
Division of Spent Fuel Storage and Transportation  
Office of Nuclear Material Safety  
and Safeguards

Date: November 22, 2006



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of Transportation

Pipeline and  
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Safety Administration

400 Seventh Street, S.W.  
Washington, D.C. 20590

**CERTIFICATE NUMBER:** USA/9290/B(U)-96, Revision 5

**ORIGINAL REGISTRANT(S):**

Mr. Marc-Andre Charette  
Manager, Regulatory Affairs  
MDS Nordion  
447 March Road  
Ottawa, K2K 1X8  
CANADA